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Publication date:
2011

Document Version
Publisher's PDF, also known as Version of record

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Title

Quantifying the effect of natural microflora on growth of *Salmonella* Typhimurium DT104 and *Salmonella* Derby in fresh pork

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Objective

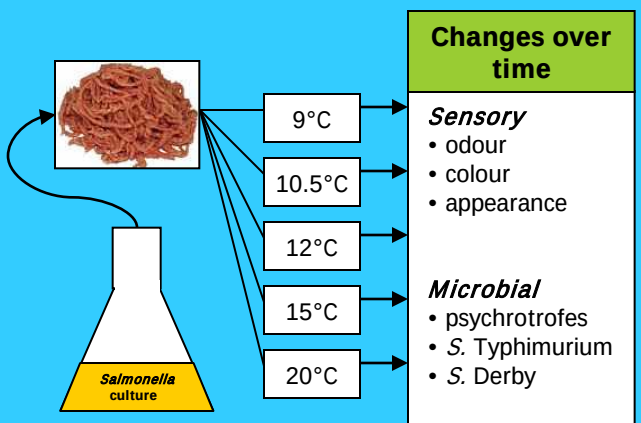
To build predictive growth rate models for *Salmonella* Typhimurium DT104 and *Salmonella* Derby in fresh pork in the temperature area between 4 and 20°C using

- sterile meat (irradiated at 5 kGy for 523 min)
- meat with a natural microflora

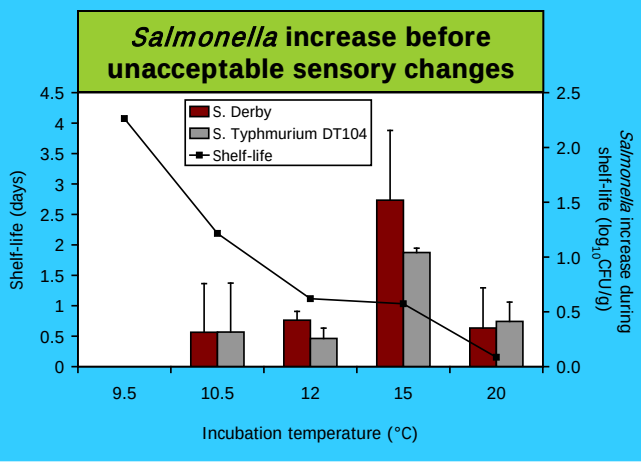
Conclusion

- Temperature abuse of fresh pork, in the chilled temperature area, induced critical *Salmonella* growth before spoilage occurred (**Result I**).
- At temperatures below 20°C, the natural background flora in pork slowed down growth of *Salmonella* Typhimurium DT104 and *Salmonella* Derby (**Result II**).

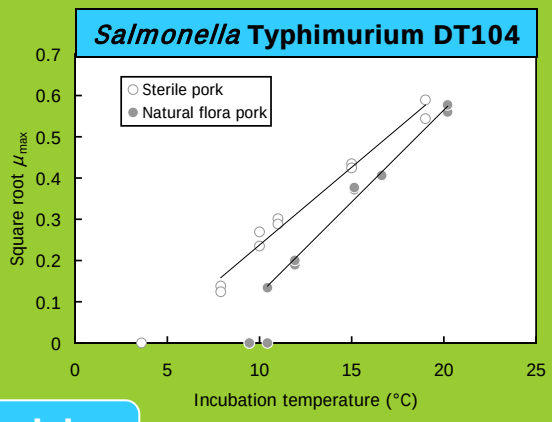
Experimental set up

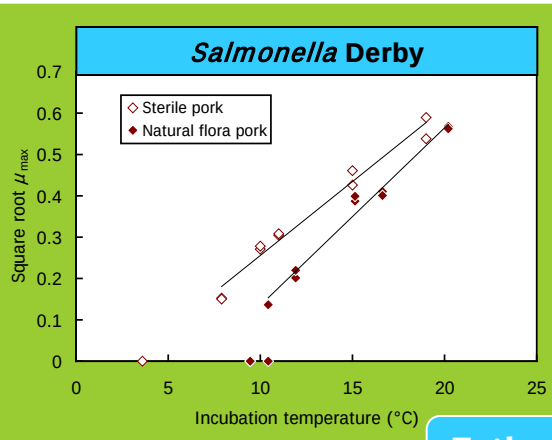


Result I



Result II





Models

PRIMARY: Baranyi and Roberts model (DMFit web edition)

SECONDARY:

$$\sqrt{\mu_{max}} = b \cdot (T - T_{min})$$

where b is a constant, T is the temperature in C and T_{min} is the intercept between the model and the temperature axis.

Estimates

Salmonella	Pork	b	T_{min}	R^2
S. Derby	Sterile	0.036	2.84	0.974
	Natural flora	0.043	6.86	0.978
S. Typhimurium DT104	Sterile	0.038	3.70	0.979
	Natural flora	0.045	7.34	0.990